Helicopter Operations Simulation (HelOS) and applications

Mr David Hammond and Mr Jamie Watson,

Maritime Operations and Tactics Analysis,

DSTO Pyrmont, NSW,

Ph: (02) 9692 1300

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Introduction

The ADF's current Amphibious capability will have reached the end of its service life by 2015

What should succeed this capability?

Desired Effect

Minimum Requirements

Simultaneous Helicopter Lift

- – **All helicopters arrive at a destination at the same time**

- – **Useful for delivering whole units ashore**

- – **Tricky if less deck spots than helicopters**

Launching

Loitering

Refuelling

Helicopter Operations Simulation (HelOS)

INPUTS : Number of helicopters and type, Type of Operation

Number of Deck Spots and types (refuel, launching, park)

Distance to destination

An Object-Oriented Queuing model

Sends

Requests

OUTPUTS:

Operation Times

Fuel Consumed

Deck Crew Hours

Controller Intensity

Safety Measurement

Helicopter Object

Controller Object

Sends

Directives

Past uses

– **HelOS has been used in future capability studies to:**

– **estimate the minimum number of deck spots required to launch a simultaneous lift of *n* airframe types**

Or…

 +

Or…

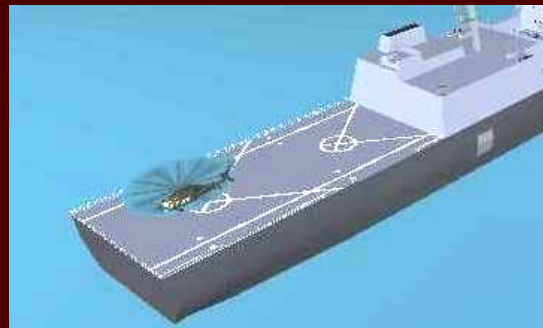– **estimate the benefits of having more than this minimum, i.e. impacts on time, safety etc**

Possibilities for the future: Scheduling

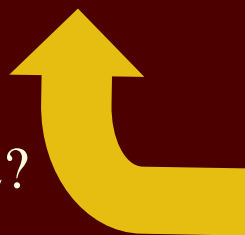**Example: Launching 3 helicopters from 2 spots**
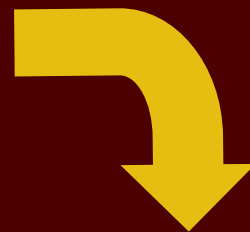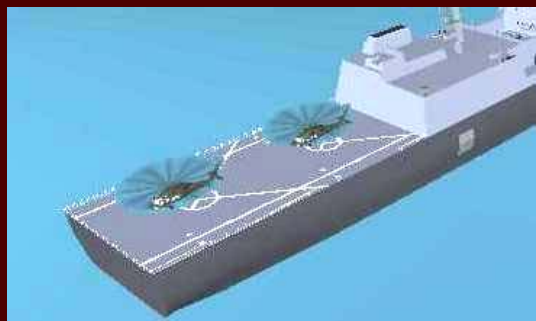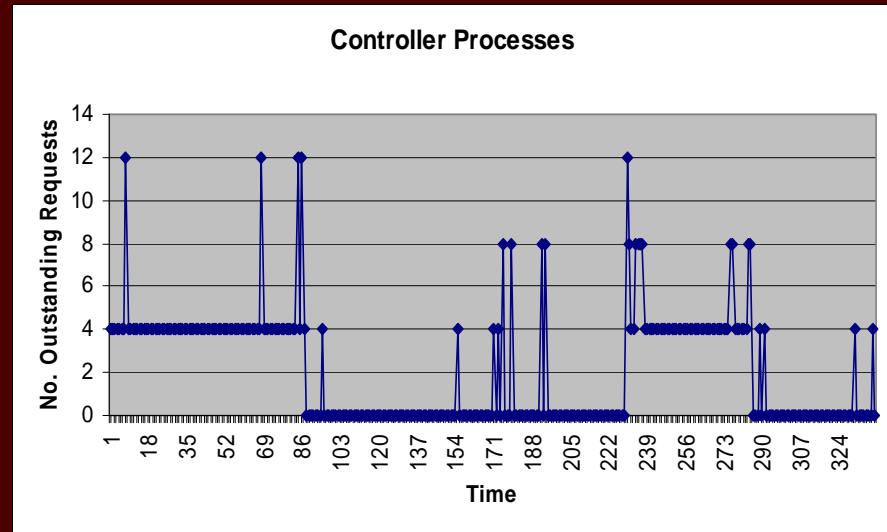

Should you launch 2 then 1…

…or 1 then 2?

Different schedules affect the work load, fuel consumption and safety of operation

Possibilities for the future: C2 issues

– **Monitoring the controller activity could offer insight into C2 levels during an operation**

Example of HelOS output

– **Trials required (possibly human-in-the-loop) to see how such results map to reality**

Possibilities for the future: Developing SOPs

- Using outputs from HelOS, trade offs that occur by altering the operation can be analysed
- Such work could feed the development of 'optimal' Standard Operating Procedures

VS.
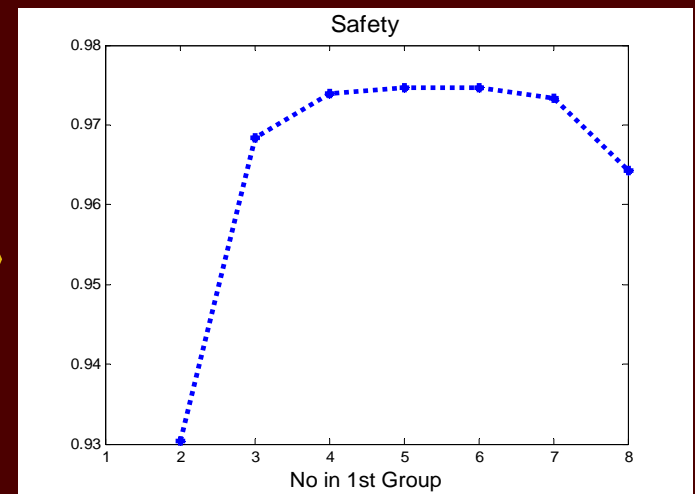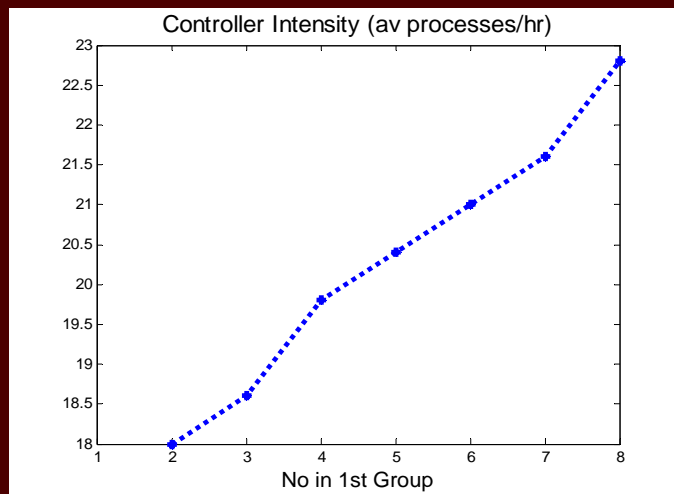
HelOS outputs

At the moment…

- HelOS being shifted from analysis tool to an operators tool

- Integration into Littoral Battlespace Tool Set (LBaTS)

- Research into inclusion of optimisation (ILP)

- Discussions being held to use HelOS for planning ops during EX CROC 03

Summary

- HelOS is an object oriented modelling tool which simulates amphibious helicopter operations

- Useful for analysis of

  - Platform requirements

  - Scheduling and C2 issues

  - SOP development

- Useful for operators as a planning tool

QUESTIONS?